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ABSTRACT

Instructional television played a significant role in El Salvador's efforts to reform grades 7, 8 and 9 of its educational system. The goals of the reform were to increase enrollments, eliminate tuition in public schools, lower failure rates, retrain teachers, improve the curriculum, and train students for service and technical careers. Changes in the system at least partially attributable to the use of instructional television (ITV) included a tripling of public school enrollments, increased student achievement, the development of positive attitudes toward education and technology, the improvement of teaching, and the general raising of educational aspirations. Other developing nations seeking educational reform can profit by following El Salvador's example regarding strong leadership and the use of a system approach, but should be cognizant of several attendant problems. These include: 1) the difficulty of providing personnel and facilities to produce ITV programing; 2) the need to uncover better ways of implementing change in traditional societies; 3) rising absolute costs, even when the system is cost-effective; and 4) the tendency of students to maintain unrealistic educational aspirations and to adhere to an outmoded but prestigious academic curriculum. (LB)

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EDUCATIONAL REFORM AND INSTRUCTIONAL TELEVISION IN EL SALVADOR

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This report was prepared for the Bureau for Technical Assistance by Dr. Laurence Wolff, on the basis of research reports published by members of the Institute for Communications Research at Stanford University, who were under contract to the Academy for Educational Development and AID to investigate the use of television in the educational reform program of El Salvador. The research at Stanford was carried out during the years 1968-1973 under the general supervision of Dr. Wilbur Schramm and in cooperation with Drs. Emile G. McAnany, John Mayo, Robert Hornik, and Henry T. Ingle.

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EDUCATIONAL REFORM AND INSTRUCTIONAL TELEVISION IN EL SALVADOR

I. Purpose of the Report

In 1967 El Salvador began a major reform of its junior high schools (grades 7 to 9), which included the use of open-broadcast instructional television. At that time the Bureau for Technical Assistance of the U.S. Agency for International Development believed that a description and evaluation of the reform, especially the role of television, would prove useful to other developing countries. The Bureau contracted, through the Academy for Educational Development, members of the Institute for Communication Research of Stanford University to conduct a comprehensive investigation of the technology aspects of the reform.

Their work was completed in August 1973, with publication of the last of 19 reports. These reports describe one of the most comprehensive investigations of an educational technology based reform ever undertaken. But the research findings are very extensive and the reports are too long and numerous for decision makers in AID and in developing countries to read in their entirety.

Thus, this short report has been prepared for quick reading. It highlights the more relevant results of the investigation, suggests some policy implications and provides information on individual reports, which are available on request from the Bureau for Technical Assistance of AID.

The first sections of this report describe the substance of the reform and the relevant implications for other countries. The final section describes a number of special studies done by Stanford University which may prove of particular interest to developing countries contemplating the use of television or some other technology in their educational systems.

II. The Educational Reform in El Salvador

Background

El Salvador has an area of only 8,260 miles and a population of nearly 3.5 million, making it both the smallest and the most densely populated mainland country in Latin America.

Economically El Salvador faces a broad range of problems typical of other developing countries, including poverty and malnutrition, a limited supply of arable land, a population growth rate estimated at 3.3% per year, concentration of wealth in a few hands, and a limited market for its manufactured goods.

In education El Salvador's problems have included a high rate of illiteracy, a high rate of dropout in the first years of primary school, an outdated academically oriented curriculum in the secondary schools, and untrained and poorly trained teachers at the secondary level. Prior to the reform only one cnild in six who entered primary school went as far as the seventh grade.

The Educational Reform

Around 1967 El Salvador's leaders decided that the junior high school should be the focus of major educational reform and expansion. They felt that tuition charges and the limited number of places in the public schools formed a barrier to the aspirations of many young Salvadorans, and the academically oriented curriculum was a barrier to the preparation of a trained and flexible labor force for the country's growing service and manufacturing sectors.

At the same time El Salvador's leaders had become convinced that their country should experiment with instructional television. El Salvador is ideally suited for television because of its relatively good transportation and communication system and dense population and because it is almost universally Spanish speaking. The Salvadorans found a sympathetic voice for their aspirations from President Lyndon B. Johnson, who in 1967 proposed a pilot project in Latin America to test the potentialities of instructional television for speeding educational development.

Instructional television was but one part of the reform. In 1968, Lic. Walter Beneke, Minister of Education, began to implement a comprehensive program to affect nearly every aspect of the elementary and secondary school system, including:

- extensive curriculum development and revision
- new student workbooks and teachers' guides
- extensive teacher retraining to utilize the new curriculum and television and to develop better teaching methodologies
- improvement of the system of supervision to provide "advice" instead of inspection
- development of more diverse technical training programs in grades 10 - 12
- construction and renovation of many school buildings
- elemination of tuition in grades 1 through 9
- use of double sessions (morning and afternoon) to teach more students in grades 7 through 9
- a new system of grading and promotion to help reduce dropout and repetition
- provision of a national instructional television system for grades 7 through 9
- reorganization of the Ministry of Education

ITV was the most visible and highly publicized element of El Salvador's educational reforms, as well as the one which demanded the greatest foreign technical assistance. While it was only one part of a package of major changes in the system, Salvadoran leaders have argued that those changes would not have occurred without the impetus of ITV.

Implementation

The implementation of the reform did not take place at once and was not without its difficulties.

As early as 1960 and 1962 El Salvador began discussing ITV. In 1966 a national commission decided to utilize ITV in grades

7 through 9. In 1967 President Johnson made his speech promising assistance in educational television, Walter Beneke became Minister of Education, and El Salvador presented a proposal to AID for funding of educational television. In 1968 AID agreed to aid El Salvador through loans, curriculum revision began, and the first ITV programs were produced. Administratively, all of the work was to be done within the Ministry of Education rather than in an autonomous organization.

In 1969 the Salvadorans began a rigid schedule of development of ITV based on expansion to a new grade each year. They tested ITV programs in a few 7th grade classrooms and at the same time retrained most of the 7th grade teachers (in nine-month residence courses) to function in the new ITV system. In 1970 they introduced ITV to nearly all 7th grades, and tested programs and retrained teachers in the 8th grade. By 1972 ITV was in use in nearly all classes from grades 7 to 9, and the government was developing plans for introducing ITV to grades 4 to 6 and for its extensive use in adult education and retraining teachers.

In July, 1969, war broke out between El Salvador and Honduras, delaying the completion of permanent ITV studios until 1972, about two years later than expected.

In 1971 tuition was eliminated for grades 7 to 9 and a system of semi-automatic promotion was instituted. Enrollment expanded greatly and many schools went on double session. In July, 1971, teachers went on strike for a variety of reasons, and did not return to work until September. Teachers were not opposed to ITV, although some felt that the money invested in ITV could have gone to improving their salaries. There was concern that the reform was being implemented too quickly and without adequate communication between teachers and the Ministry of Education.

A new government took office in 1972 and reiterated its commitment to ITV. While there was a significant turnover in personnel in the ITV department, continued expansion of ITV appears assured.

Results

The Stanford University research effort measured the changes which occurred in the system because of the use of ITV in the

reform, and found the following:

Number of students. In 1966, before the reform began, 22% of the number of persons aged 13 to 15 were enrolled in grades 7 through 9. Twenty-two thousand students were in public junior high schools and 23,000 in private schools. By 1973 the reform had achieved its quantitative goals to a great extent. Thirty-four per cent of the 13 to 15 age group were in grades 7 through 9 -- 65,000 in the public schools and 23,000 in private schools.

There was also much less failure and dropout during the reform years, but it is not clear whether this was due to ITV or to other aspects of the reform.

Student learning and attitudes. Students who studied with ITV and the other elements of the reform over three years gained from 15-25% more on General Ability Examinations than did those who studied under the traditional system, and others who studied with all elements of the educational reform except ITV. Overall, ITV students also performed better on achievement tests in Mathematics, Social Studies, and Natural Science, and particularly so in seventh grade. Reading capabilities of both ITV and non-ITV students advanced at about the same rate.

The reform system did not reduce differences in achievement between children of poor or illiterate families and children of richer, better educated families.

A majority of students were favorable toward ITV throughout the four years in which attitudes were surveyed. However, their high initial enthusiasm declined as they progressed from 7th through 9th grade. Attitudes toward English benefited most from the introduction of ITV, since English was little liked by non-ITV students but well regarded by ITV students.* Disadvantaged children and children with low general ability liked ITV more than more advantaged students.

Ninety per cent of the students in grades 7 to 9 wanted to continue their education, and 50% hoped to get a university degree. Most of the students aspired to high status professional occupations, such as engineers, doctors, accountants, etc. Given El Salvador's level of development, these aspirations are unrealistic and may lead to frustrations as the students grow older.

*In general, their teachers were ill-prepared to teach English. This result underscores the idea that ITV is particularly effective for subjects in which teachers are very poorly prepared.

A follow-up study of the first group of 9th grade graduates in 1973 showed that over 85% of them were continuing their education. While 50% of the students were in technical career programs, the other 50% were in the academic programs preparing them for university entrance.

Teacher activity and attitudes. One of the more striking aspects of the educational reform was the retraining of nearly all 7th, 8th, and 9th grade teachers in nine month residence courses covering their areas of specialization and teaching methodology related to ITV.

The Stanford research team used a simplified classification scheme to observe a small number of teachers and to measure the extent they employed "modern" methodologies such as asking "thought" questions, using learning aids, giving individual instruction, and encouraging student discussion and questions. The results showed that teachers who underwent the retraining course were much more likely to emphasize modern teaching methodology than those who had not undergone this training. Previous training had no relationship to these results. Thus, the reform appears to have achieved its goal of improving teaching methodology in the junior high school classrooms.

While teachers were very enthusiastic in 1969 about ITV, four years later they were much more willing to be critical, especially of particular courses, although a majority still favored ITV. Over the same period, teachers became more dissatisfied with their own working conditions.

Costs and benefits. In 1972, when 42,000 students were enrolled in ITV programs, the cost to the El Salvador government for ITV was about $17.75 per student per year. Including outside loans and grants, the cost was about $24.35. As the system expands, the cost per student will increase. If 96,000 students were enrolled, the El Salvador government cost would fall to $9.42 per student and the cost including outside assistance would be $12.73 per student (assuming the same percentage of outside assistance). Based on rough enrollment estimates of the rate of expansion over the first 25 years of the project, the average yearly cost per student over that period should approximate $17.00.

This amount would be an "add-on" to the regular teaching cost. But in 1971 the institution of free tuition greatly expanded enrollment in junior high school. The student teacher ratio increased from 35:1 to 53:1 as most of the school went on double session; and teachers' salaries increased only 20%. This meant that the total per student cost of classroom reaching plus television was actually lower than the cost would have been within the traditional system. In a year in which 60,000 students were using ITV, the per student cost of ITV plus the classroom teacher would be $47. This would be lower than the $52 required if ITV had not been used, class size not increased, and teacher load not changed. Thus, when ITV was accompanied by increases in the student teacher ratio it offered real direct savings in per student cost.

However, this conclusion should be tempered by the fact that the increase in the ratio was one cause of the teachers' strike, which closed the schools from July to September.

The benefits of ITV can be expected to increase in the years ahead if the El Salvador government continues with its plans for in-service training of primary school teachers via ITV (on Saturday mornings) and for adult education in the evenings. Both these programs would offer significant savings over traditional approaches, which would have meant expensive residence courses for primary school teachers and payment of regular teachers (rather than monitors) for adult education.

In its planning documents, El Salvador emphasized that the educational reform was also designed to provide middle level manpower for new technical jobs in industry and agriculture. The Stanford research was not designed to measure this effect. However, the research does show that a majority of ninth grade graduates are still following the academic curriculum.

III. Conclusions and Implications

The educational reform with ITV in El Salvador has been a notable success: more students, better learning, and equal or lower per student costs. Two characteristics were probably responsible for this success:

Strong Leadership - In contrast to many other nations which have relied upon foreign models and foreign advisors, El Salvador insisted upon strong national control and development of its own resources from the outset. Walter Beneke, Minister of Education from 1968 to 1972, was the driving force for installation of ITV. He insisted that Salvadorans assume responsibility for all phases of the educational reform including television. He also insisted that the Ministry of Education, rather than an autonomous organization, be in charge of all aspects of the ITV program. Thus ITV was completely integrated into the educational structure and Ministry of Education officials were justly credited with the project's successes but also held strictly accountable for its shortcomings.

A Systems Approach - In El Salvador ITV was coordinated with other major changes to provide a systems approach to educational reform. El Salvador's leaders have insisted that ITV played a catalytic role in implementing those changes.

For instance, it became necessary to revise the curriculum so that ITV lessons would carry the most modern knowledge and methodology. Then it became necessary to retrain teachers to utilize the new lessons. The training had to make a sharp break from regular training programs which had not provided teachers with modern pedagogical methods. The system of supervision had to change so that feedback would be provided to the ITV team. Finally, a new set of instructional materials had to be provided to students and teachers.

The result was that the educational system as a whole was able to make both a quantitative and qualitative leap forward.

But the El Salvador experience was not an unqualified success. ITV still faces serious problems which will have to be resolved by El Salvador as well as by other countries interested in a technology-based project. Among these problems are:

How to Achieve High Quality Television - One of the chief complaints of teachers and outside observers has been the uneven quality of the television programs. This problem came about because El Salvador decided to train its own personnel and follow a rigid schedule of expansion of programs, and because for the first three years it was hampered by inadequate studios. There is also some uncertainty about the continued improvement of quality in the programs, since there has been heavy turnover of personnel with the installation of a new government in 1972.

This experience suggests that a country developing ITV must allow sufficient time before the project goes on the air to train production teams, and it must test and remake as many programs as possible on the basis of systematic feedback. It also needs to develop a way of assuring continuity of personnel.

How to Achieve Acceptance of Change - The educational reform in El Salvador required many persons and groups to accept new roles, and inevitably led to conflict. The most visible conflict was the teacher strike in 1971, but there was also dissatisfaction among supervisors, who were hesitant about accepting their new role as advisors rather than inspectors, and among graduates of the university level normal school, who felt their elite status was deteriorating. El Salvador was able to overcome many of these conflicts because of the strong leadership of Minister Beneke.

Other countries will need to expect these conflicts if large scale educational reform is to be achieved. Strong leadership and open communication among all interested groups will be necessary.

How to Get Significant Economic Benefits - El Salvador achieved significant savings in per student costs by linking ITV with increases in the student teacher ratio. The government will achieve more savings in unit costs as ITV expands to train primary school teachers and provide adult education. However, the absolute costs of education are going up as the country reaches more and more persons in school going age. In 1972 the Ministry of Education consumed 36.6% of the national budget.

This concentration of scarce resources could ultimately be repaid if the educational reform has a payoff in productivity and economic growth. El Salvador's leaders believe this will be the case, but little evidence is yet available to prove or disprove their contention.

In short, the reform improved the internal efficiency of education but it is not known how this improved "product" will affect the economy as a whole.

For other countries the El Salvador experience emphasizes the need for choice among cost-benefit alternatives. If ITV is introduced to the formal system where a professional staff of teachers already exists, the only direct monetary benefits can come from increasing the student teacher ratio. But this may run the risk of alienating the teaching force. Another choice might be to begin with adult education. This might offer significantly lowered costs than the conventional system, and might also have a more immediate and visible economic payoff. But the choice of where to begin ITV will depend on complex political and social questions as well as questions of cost-benefit.

It is also important to note that ITV in El Salvador will soon be able to provide permanent retraining of primary school teachers, the education of adults, and classroom instruction from grades 4 to 9. The educational airways will be filled from morning to evening, as well as on Saturdays. Thus the most important effect of ITV in El Salvador may come in the future, when it will begin to provide educational experiences to all segments of the population.

IV. Special Studies

During the course of their study Stanford University made a number of innovative attempts to understand the process and effects of the educational reform. Reports describing these experiences are listed and summarized below and may be requested from the Bureau for Technical Assistance of AID.

1. "Feedback for Instructional Television," by Wilbur Schramm. Research Memorandum No. 3, December 1969.

   This report describes the types of "feedback" available in ITV. Feedback is defined as the information which comes back to any person communicating a message by which he can judge the effectiveness of his message. In a classroom a teacher can tell relatively easily how well his students are learning. In ITV the process is more difficult, and special efforts must be made to obtain feedback from teleclasses. Among those discussed in the report are the following:

   1. Pretesting programs. In this case, an ITV program is tested on a representative sample of the intended audience before it is broadcast to the entire school system. Since pre-testing is expensive and time-consuming, often only a representative sample of the programs is pretested.

   2. Pupils in the studio. Students may be present in the studio while the television teacher is conducting his session. In this way he can observe the classroom response directly. A variant of the studio class is to select a small number of students--generally from 1 to 6--to participate in the program.

   3. Immediate feedback from the classroom. A two way microphone or telephone can be set up between one of the television classes and the teleteacher.

   4. Regular classroom testing of learning of program content. It is most useful to do testing and get results at frequent intervals, such as through a weekly five minute test, rather than only once or twice a year.

   5. Regular comments from classroom teachers. The teacher is asked to fill out a report blank for the television teacher and other program personnel,

once a week or once a month--sometimes after every TV class.

6. Regular observation of classroom activity. Supervisors can observe classes and bring back reports to the television teachers. Alternatively, if the teleclass is transmitted on videotape, the television teacher himself can observe a class.

7. Reports on attitudes of pupils and teachers. Tests may be administered to measure how teachers and students feel about the ITV classes.

8. Reports on specific problems. When feedback information points to a problem, research is needed to suggest solutions. For instance, if students are failing mathematics tests, then questionnaires and interviews will be necessary to diagnose the reasons and suggest program changes.

9. Expert review of programs and materials. At the end of the year, the program department may review all the class and teacher materials and discard those it believes are inadequate.

According to the report, there is no ideal program of feedback, but it is important that the ITV team utilize several which are simple and efficient.

2. "Feedback on Student Learning for Instructional Television in El Salvador," by Ana Maria Merino de Manzano, Robert C. Hornik, and John K. Mayo. Research Report No. 6, February 1971.

This report describes a method of "feedback" which the Stanford evaluation team developed in 1970 to find out how much students learned from a course unit. They administered tests by television to the students and then got the results back quickly so that review lessons could be prepared for further telecasts. The experiment developed because the project's evaluators felt that they did not have enough short-term feedback to accompany the annual achievement and attitude tests.

Two tests, one in 7th grade mathematics and the other in 7th grade social studies, were broadcast during scheduled class hours in September 1970. On the TV screen the teleteacher read the question, and then three alternative answers were flashed on the screen. The student listed on a sheet of paper the answers he thought were correct. The evaluation team visited each of 14 classes, collected the tests, and gave the results to the teleteacher within three days.

The results of the tests were encouraging, since classroom teachers, teleteachers, and students found them useful.

According to the report, expansion of the testing program to cover more schools would require the training of more persons in objective test construction, as well as good logistics in collecting and analyzing results. The program would be able to (a) provide information to television production teams about student learning in time for them to change some of their tactics, (b) help guide periodic revision of television classes, (c) help evaluators discover the causes of learning difficulties, (d) provide information about appropriate subjects and teaching styles on television, and (e) help classroom teachers identify learning problems in their classes.

3. "Teacher Observation in El Salvador," by Judith A. Mayo. Research Report No. 5, January 1971.

This report describes the development, use and results of a simple method of observing and measuring the quality of teaching in El Salvador. The method was based on the typology developed by Clarence Beeby, who hypothesized that teaching methodology in educational systems follows four stages of development: (1) drill and memorization, (2) the strict sequencing of a formal curriculum, (3) greater enrichment and flexibility, and (4) the encouragement of critical thinking.

The researchers decided to measure classroom behavior by an observation form which listed such activities as

how much the teacher lectures, dictates, asks thought questions, uses learning aids, provides individualized instruction, permits students to ask thought questions or to have discussions, and encourages group work. The observation form divided activities by time periods and by the number of times an activity is engaged in. Using video tape the researchers were able to train observers for reliable reporting in about six hours time. They applied the form to observations of 16 7th grade teachers, eight of whom had undergone a 9 month retraining course to prepare them for the ITV reform, eight of whom had received little or no retraining.

The results show clearly that the eight retrained teachers used more modern teaching methodology. For instance they asked at least one thought question per class, while the "old system" teachers asked one thought question for every 10 classes observed. They dictated only about one minute per 25 minute class, while the old system teachers dictated an average of over 5 minutes per class. In addition they used learning aids, allowed student discussion, and encouraged group work more often than old system teachers. They seemed to be moving from stage two to stage three in Beeby's typology.

No other factor other than the retraining course seemed to affect teaching methodology. Some of the "old system" teachers had more years of formal schooling than the retrained teachers, but they still used the old pedagogy.

According to the report, the results suggest that teachers will change their methodology if they have a retraining course which actually shows them the new methods and allows them to practice them. Also, the observation form should enable supervisors to focus their attention on discrete pieces of teacher behavior. However, the report notes that the form does not measure the quality of discussion or questions and does not measure affective behavior, such as teacher praise or criticism.

4. "An Administrative History of El Salvador's Educational Reform," by John K. and Judith A. Mayo. Research Report No. 8, November 1971.

This report recounts the way persons involved in the educational reform in El Salvador shaped and reacted to change. Its purpose is to provide a history of the context of the educational reform and to help educational planners in other countries to utilize the El Salvador experience more fruitfully. The sources of the report include documents, participant observation, and interviews.

According to the report, the decision to use ITV in El Salvador evolved over a number of years beginning in 1960 and was a Salvadoran decision. In 1965 and 1966 a presidential commission reported favorably on the subject and decided to begin in grades 7 to 9. After a number of outside studies the El Salvador government secured a commitment by AID in 1967 to help finance the project. A debate over where to locate the project--in an autonomous organization or in the Ministry of Education--was resolved in favor of the latter when Walter Beneke, the driving force behind ITV, was made Minister of Education in 1967.

AID provided a grant to furnish studio facilities and production was begun in 1969. However, an AID loan to build additional studios was held up because of bureaucratic reasons and because of the 1969 war between El Salvador and Honduras. Only in 1972 were permanent buildings available. These were located in Santa Tecla (near the capital) rather than next to the normal school in San Andres, as was originally planned.

Nearly all the ITV staff was recruited from among school teachers. This meant that they had little or no experience in television production, and, according to the report, both the technical and content quality of programs suffered as crews learned on the job. After the first years crews began to work together better and more formal training was made available to them.

Foreign advisors often played a useful role in improving ITV, but, according to the report, their utility varied depending on whether they had a specific job to accomplish. Those with only vague working tasks were not so successful.

The process of curriculum reform had to be done rapidly to keep up with the taping of TV programs. While at first the curriculum writers resented the ITV staff, gradually they began to provide curricula for the ITV production crews which emphasized understanding and applying concepts rather than remembering facts.

According to the report, the changeover of supervision from one of inspection to one of "advice" involved a number of administrative problems. At first special supervisors were provided to the ITV department, but when they were transferred to the regular supervisory service, the two concepts of supervision clashed. At the same time, there were really too few supervisors available for any systematic visits and assistance to classes. As of the writing of the report, the supervisors were still spending 60 to 90% of their time on administrative and inspection chores.

Retraining of all junior high school teachers was accomplished at the normal school in San Andres. The programs there gradually improved in quality. According to the report, some of the teachers who had graduated from the university normal school distrusted the retraining course, since they felt they had nothing to learn.

By the beginning of 1971, San Andres was ready to shift its major emphasis to pre-service training of primary and secondary school teachers. Minister Beneke had closed all the other normal schools in the country, and there was hope this single facility could provide high quality teacher instruction.

According to the report, the main conclusions from the administrative history of the educational reform are:

- the importance of local initiative and control by Salvadorans and the Ministry of Education rather than by outsiders

- the importance of integrating a tool such as television with changes in the entire system

- the importance of strong leadership from both the President and the Minister of Education

- the importance of some foreign advisors, especially those with knowledge of Spanish who worked in more technical areas and had specific job tasks.

5. "Television and Educational Reform in El Salvador. Follow-up Study on the First Group of Ninth Grade Graduates," by Henry T. Ingle, in cooperation with Jose R. Velasco and Victor M. Zelada. Research Report N 12, June 1973.

This report summarizes the findings of a follow-up study on the first group of students to finish three full years of schooling under the educational reform program of El Salvador. In studying the "educated" student, the researchers hoped to get a better perspective on the relevance of the educational system to the country's social needs. The study was done in 1972 and consisted of structured 30-minute interviews with 392 graduates of the 1971 ninth grade class, who were randomly selected from all graduates.

According to the report, 86% of the graduates contacted were continuing their education. Graduates from urban areas, younger graduates, and graduates whose fathers were of higher socio-economic status were more likely to be continuing their education than others. About 50% of those continuing their education were in the academic course, the most traditional of the bachillerato programs, with a proportionately larger number of non-reform students than reform students in the academic course. Other students were studying various commercial,

industrial, and business courses. 68% of all the students had plans to continue their studies.

88% of the graduates considered that their studies in grades 7 to 9 were difficult. They most valued their classroom teachers and particular subjects taught, especially English and mathematics. While only 13% mentioned that ITV was of great value, 76% felt it should be extended to other grade levels, especially to the bachillerato in which they were studying.

A great majority of the graduates felt that their experience in grades 7 to 9 was very useful and meaningful, especially in developing theirreasoning ability (90%) and in sparking their intellectual curiosity (88%). But only 47% felt that their schooling had helped them to develop job skills for possible future employment. Most enjoyed their school environment; 45% expressed satisfaction with the quality of the television lessons and only 22% thought their library was adequate.

86% believed it was important to succeed economically in life. Most of the graduates felt it was necessary to help to make the world a better place to live in, to have good friends, and to take part in government, but only a minority expressed interest in living according to religious ideals or in being connected to the problems of society.

According to the report, the results of the study are both encouraging and discouraging: encouraging in the fact that the educational reform seems to have stimulated more students to study diversified technical career programs; discouraging because half of them are still in academically oriented programs leading to higher education and professional careers, and they may find themselves frustrated in the future. The study also shows a tendency for students to migrate to the urban areas to continue their studies--a trend which might retard the development of rural areas.

The results are also encouraging because of the positive feelings graduates had about education in grades 7 to 9,

but it should also be noted that they felt they did not receive marketable job skills.

On the whole, according to the report, the findings are tentative, since the students were interviewed only nine months after graduating from ninth grade. But the study is still important because it offers a type of "feedback" which is of immediate relevance to educational planners and which should become part of a regular, systematic procedure.

The study also developed a practical research methodology for doing this type of research and a series of measurement instruments. The methodology may be useful to other countries wanting to conduct similar assessments of their own educational system.